



Heron Resources Limited

# Building an Australian zinc producer

August 2018



ASX:HRR

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## Compliance Statement (JORC 2012 and NI 43-101)

The technical information in this release relating to the exploration results and forward program at the Woodlawn Project is based on information compiled by Mr David von Perger, who is a Member of the Australian Institute of Mining and Metallurgy (Chartered Professional – Geology). Mr von Perger is a full time employee of Heron Resources Limited and has sufficient experience, which is relevant to the style of mineralization and type of deposit under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the JORC Code (2012 edition) and “qualified person” as this term is defined in Canadian National Instrument 43-101 (“NI 43-101”). Mr von Perger has reviewed and approved the technical information this presentation.

An Exploration Target is term used within the JORC 2012 Code for an estimate of the exploration potential of a mineral deposit. As used in this release the stated exploration target is based upon the parameters described in the text, however the potential quantity and grade is conceptual in nature and there is insufficient information to estimate a Mineral Resource and it remains uncertain if further exploration will result in the estimation of a Mineral Resource in this area of recent drilling.

**The zinc equivalent ZnEq calculation takes into account, mining costs, milling costs, recoveries, payability (including transport and refining charges) and metal prices in generating a Zinc equivalent value for Au, Ag, Cu, Pb and Zn.  $ZnEq = Zn\% + Cu\% * 3.12 + Pb\% * 0.81 + Au \text{ g/t} * 0.86 + Ag \text{ g/t} * 0.03$ . Metal prices used in the calculation are: Zn US\$2,300/t, Pb US\$ 2,050/t, Cu US\$6,600/t, Au US\$1,250/oz and Ag US\$18/oz. These metal prices are based on Heron’s long term view on average metal prices. It is Heron’s view that all the metals within this formula are expected to be recovered and sold. Metallurgical metal recoveries used for the formula are: 88% Zn, 70% Pb, 70% Cu, 33% Au and 82% Ag; these are based on historical recoveries at Woodlawn and supported by metallurgical testwork undertaken during the 2015-16 feasibility study.**

# HERON RESOURCES INVESTMENT PROPOSITION

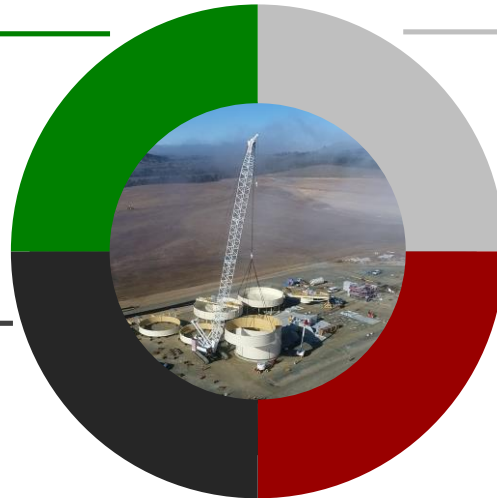
ASX:HRR

## MARKET - ZINC

- Supply / demand fundamentals support price strength
- Woodlawn production timed to meet tight physical market
- Positive outlook for Cu & Pb

## ASSET - WOODLAWN PROJECT

- High quality deposit
- Compelling 'starter' business case
- Av. EDITDA +A\$100M pa\*
- New 'state of the art' process plant (no refurb/retro-fit)
- Favourable jurisdiction & excellent infrastructure
- Project life extensions - resource upgrades & demonstrated discovery



## FINANCED - FOR DEVELOPMENT

- A\$240M full funding package
- Three supportive cornerstone investors

## FOCUS - EXCLUSIVELY WOODLAWN

- Construction underway – 68% COMPLETE
- First product shipment – Q1 2019
- Growth through strong regional position

\* Feasibility Study, spot prices & FX 2 Aug 2018

# HERON OVERVIEW



## CAPITAL STRUCTURE

<b>ASX listing:</b>	ASX: HRR
<b>Shares:</b>	242 million
<b>Opts/Perf Rights:</b>	6.7million
<b>Share Price:</b>	A\$0.62
<b>Market Cap:</b>	A\$150 million
<b>Cash: (30Jun 2018)</b>	A\$65 million (unrestricted)
<b>Debt:</b>	US\$20M of US\$60M drawn
<b>Listed Investments:</b>	Ardea Resources Alchemy Resources Centennial Mining

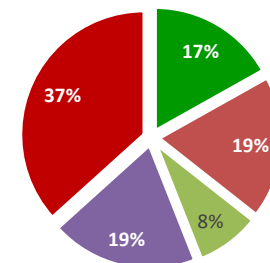


## BOARD

<b>Chairman</b>	Stephen Dennis
<b>MD &amp; CEO</b>	Wayne Taylor
<b>Non-Executive Director</b>	Borden Putnam III
<b>Non-Executive Director</b>	Fiona Robertson
<b>Non-Executive Director</b>	Mark Sawyer
<b>Non-Executive Director</b>	Peter Rozenauers
<b>Non-Executive Director</b>	Ricardo De Armas
<b>Non-Executive Director</b>	Ian Pattison



## SHARE REGISTER



- Orion
- Greenstone
- Greenstone Aff
- Castlelake
- Australian Register

# MARKET ZINC FUNDAMENTALS

Zinc makes up 52% of Woodlawn's revenue

## Market Drivers

(a current snapshot)

### A Supply Side Story

- Aging production base
- Project pipeline lacking incentive (price driven)
- Producer discipline

### Demand growth

- Steady consumption growth (galvanising)

### = MARKET IMBALANCE

- Contracting stocks
- Price support (noting recent volatility)
- Low treatment charges

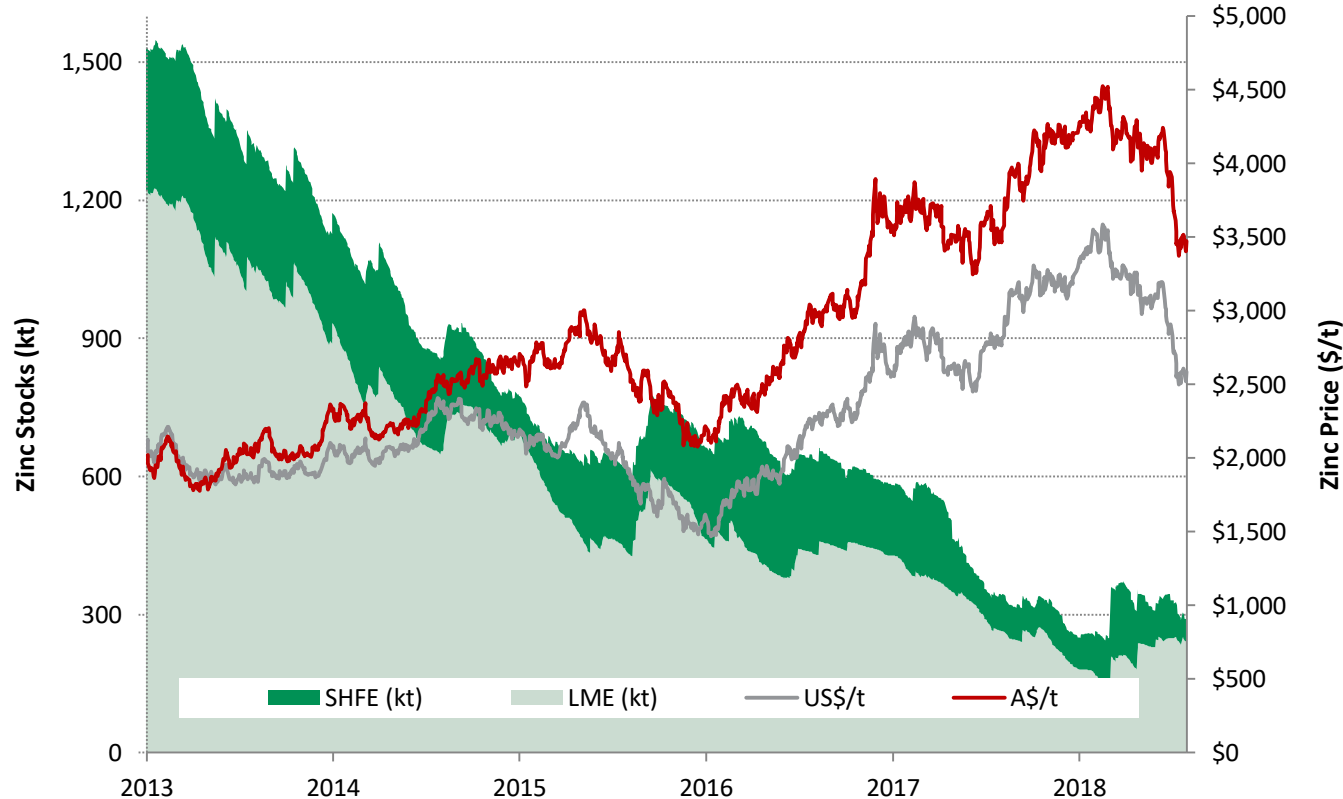


Chart Source: LME, RBA, SHFE, Terra Studio

# MARKET ZINC - Where to from here?

## The case for future price support

### Market Suppliers:

- Current base load production
- Some 'incentivised restarts' BUT only a handful of 'new' projects
- Dropping head grades for existing and added projects
- Difficulty in securing project finance for greenfield investment

*Same 'old' assets just 'older'*  
*First movers taking path of least resistance*  
*Cost base support for higher prices*  
*Current volatility means its going to get harder*

### Market Demand:

Steady consumption growth - drivers include infrastructure, consumer products, vehicles

**Medium to Long Term – price stability and strength required to incentivise new projects to match demand**

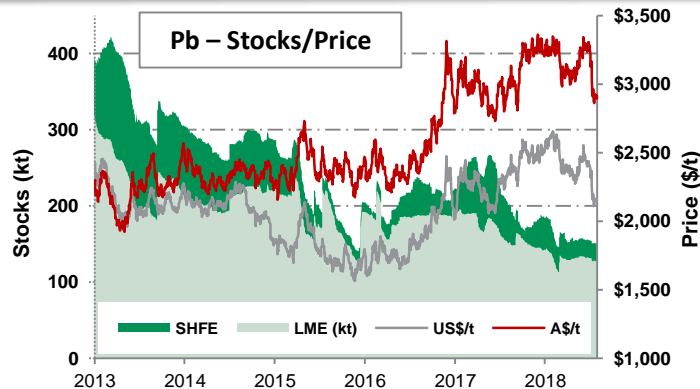
# MARKET COPPER + LEAD

**Cu 23% & Pb 15% of Woodlawn Revenue**

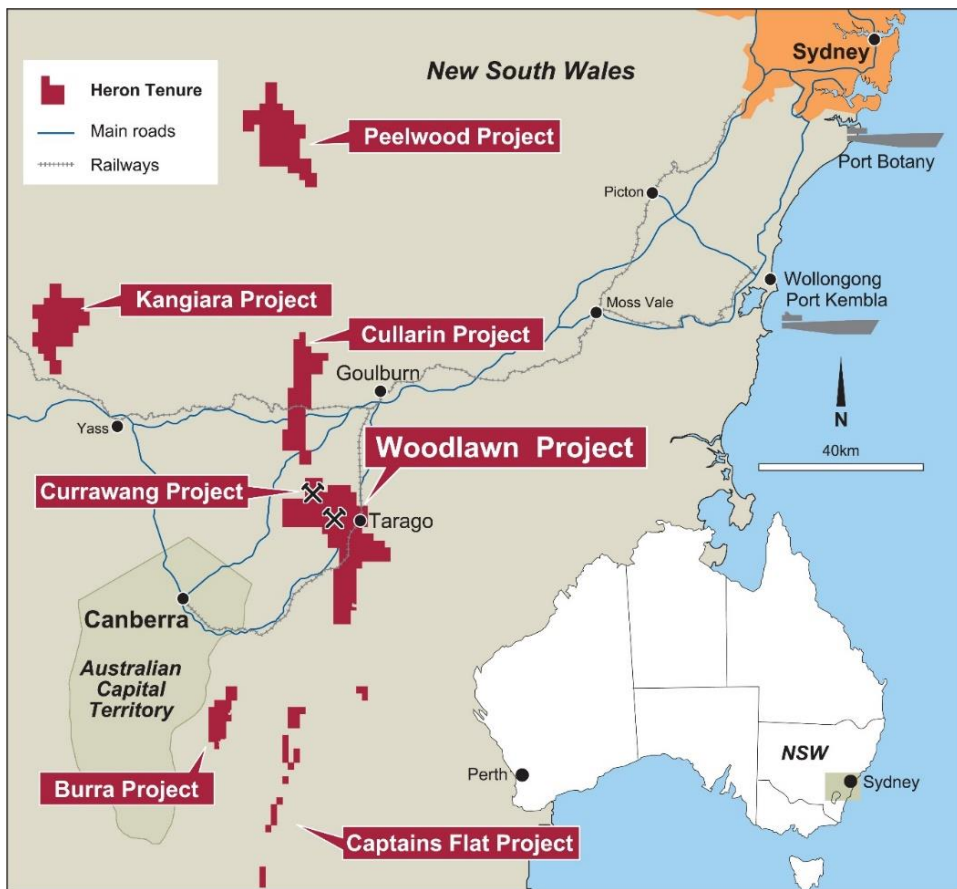
**Copper** - Balanced market with strong demand growth  
- Significant supply deficit forecast for 2019\*

**Lead** - Supply deficit  
- Falling stocks

\* ICSG 20 July 2018



# WOODLAWN ZINC-COPPER PROJECT



## Premier Location

ACCESS	✓
POWER	✓
PORT	✓
WATER	✓
LABOUR	✓
PERMITTING	✓
MINING LEASE	✓
COMMUNITY	✓

# ASSET WOODLAWN ZINC-COPPER PROJECT

Unrivalled infrastructure



## Feasibility Review (Feasibility Study - June 2016)

1.5Mtpa Production Rate

9.3yr LOM (Reserves only)

- Significant Resource upside

### Reserves

- UG 2.8Mt @ 14% ZnEq<sup>1</sup>
- Reprocessing 9.5Mt @ 6% ZnEq

### Steady State Gross Production

- 40ktpa Zn (88Mlbs)
- 10ktpa Cu (20Mlbs)
- 12ktpa Pb (25Mlbs)
- + Ag / + Au

### Financials (at spot 2 Aug 2018)

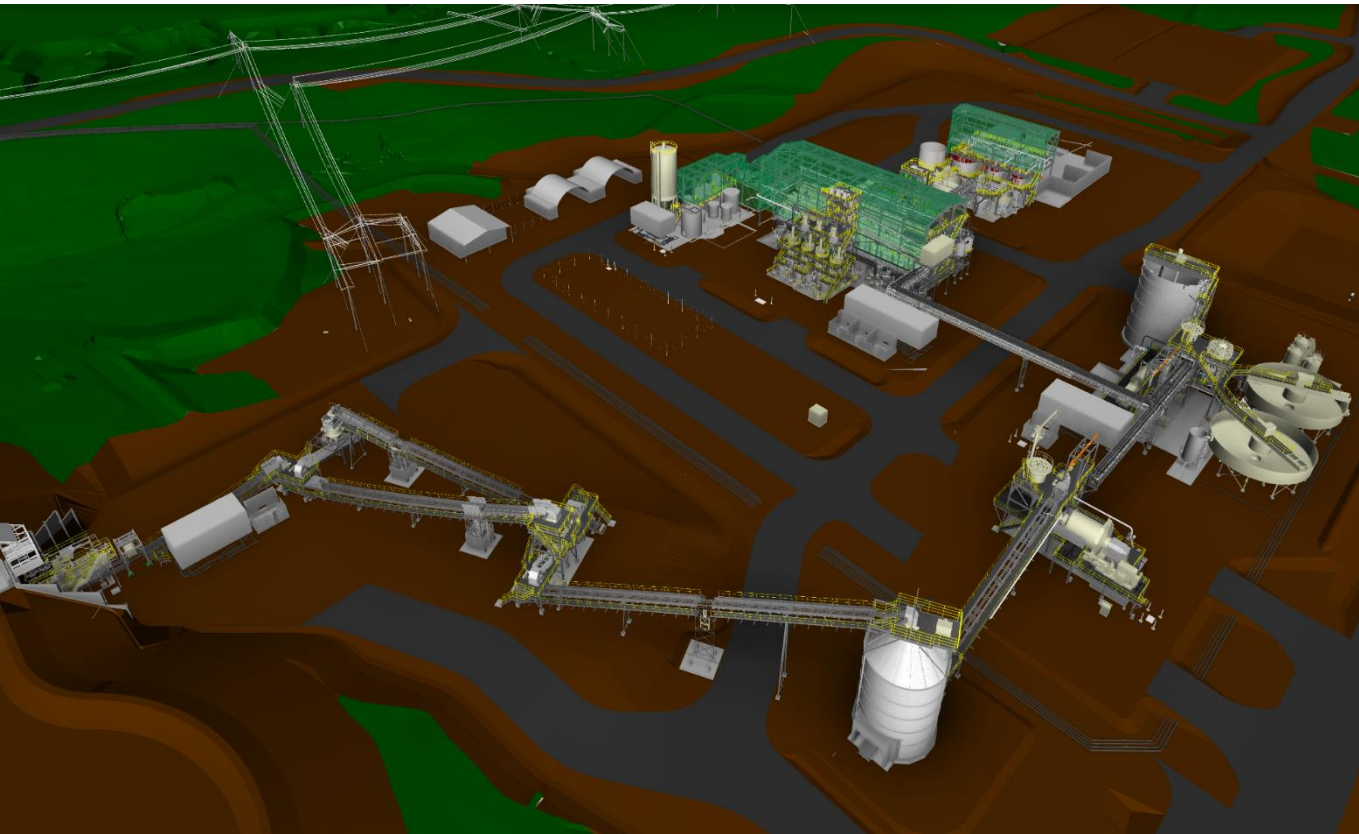
- Av. EBITDA +A\$100M pa
- C1 US\$0.51/lb ZnEq  
or  
US\$0.04/lb Zn (post by-products)

<sup>1</sup> Refer to Slide 2 for definition



# FOCUS WOODLAWN EPC

Construction on track and within budget



## Project Delivery

**Contractor:** Sedgman

**EPC:** Guaranteed Maximum Price

**Personnel:** 150+ FTE (current)  
250 (peak)

**Site Progress (end July):**

- Earthworks – Done
- Detailed Design – 96%
- Concrete – 97%
- Equip Purchase – 96%
- Off Site Fabrication – 78%

**OVERALL COMPLETION 68%**

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# FOCUS WOODLAWN PROCESS PLANT

Site Progress



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# FOCUS WOODLAWN PROCESS PLANT

Site Progress - ROM Pad, TSF4 & Crushing



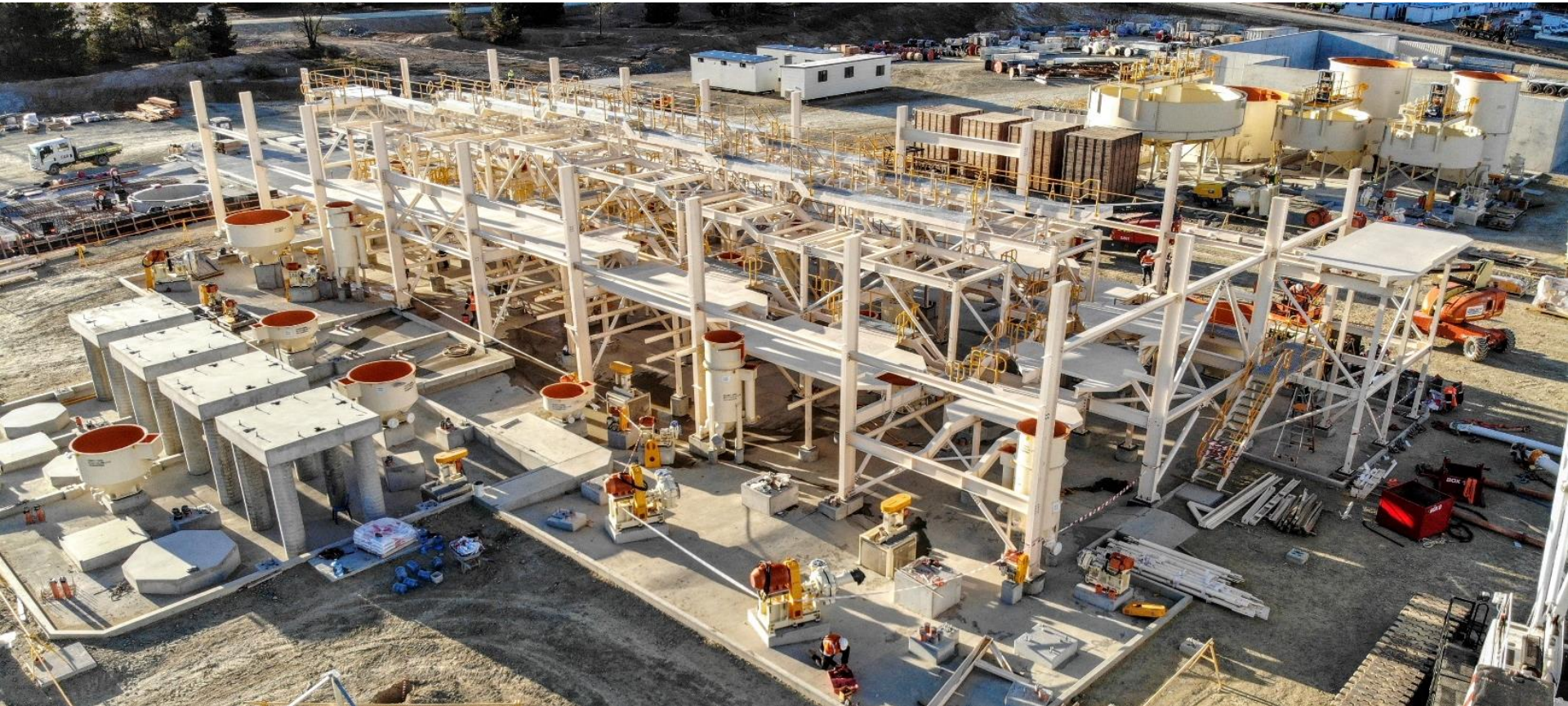
# FOCUS WOODLAWN PROCESS PLANT

## Site Progress - Grinding



# FOCUS WOODLAWN PROCESS PLANT

## Site Progress - Flotation



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# FOCUS WOODLAWN PROCESS PLANT

## Site Progress – Concentrate Handling



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# FOCUS WOODLAWN PROCESS PLANT

## Site Progress – Administration Facilities



# FOCUS WOODLAWN OPERATIONAL READINESS

## Building strong foundations



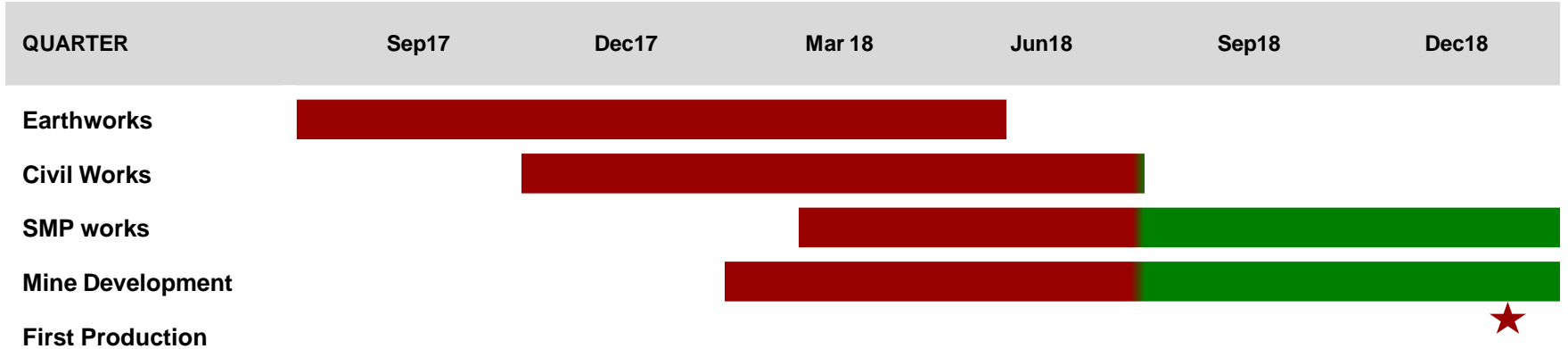
## Current Activities

UG Mining Contract	Awarded
Tails Mining Contract	Awarded
Port Contract	Awarded
Haulage Logistics	Awarded
Power Contract	Awarded
Water Treatment	Awarded
Concentrate Containers	Awarded
Process Reagents	Awarding
Ops Team	Mgmt 100%
	Superintendents 100%
	Staff 44%
	Ops & Maint commenced



# FOCUS WOODLAWN DELIVERY SCHEDULE

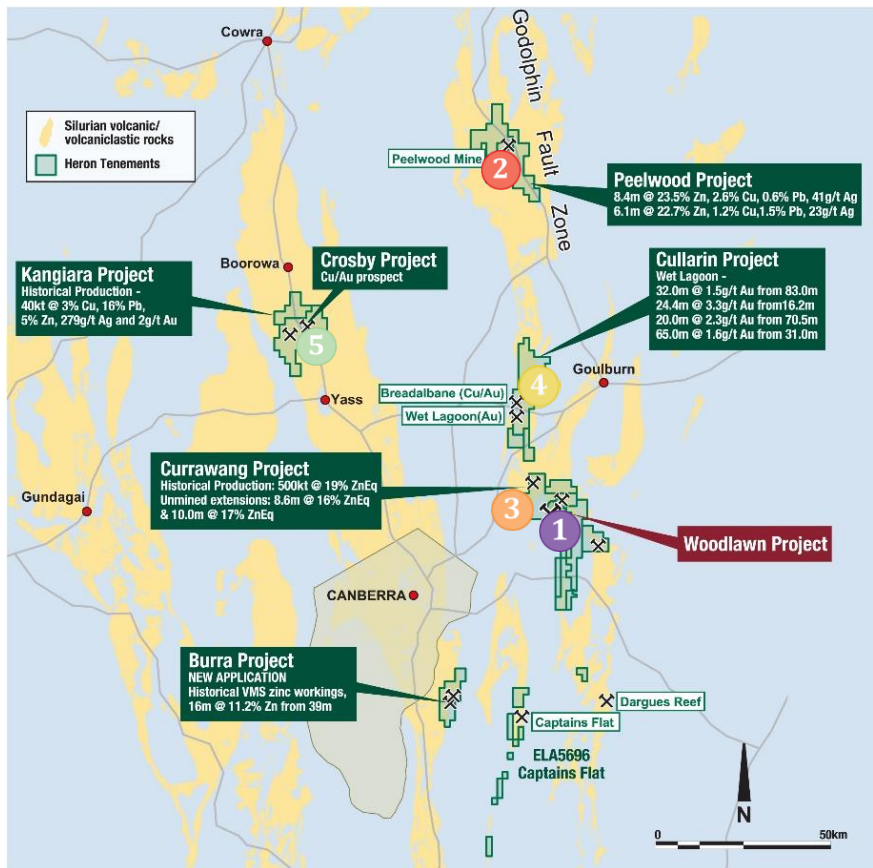
Expedited project schedule



**Project currently +68% complete as at 31 July 2018**  
**Targeting first production end 2018 / early 2019**

# GROWTH WOODLAWN EXPLORATION STRATEGY

Value Multiplier – building the business beyond the Feasibility Study ‘Starter Case’



## Prioritised Organic Growth

1

### In Mine Exploration

- Advancing Inferred Resources
  - UG 2.6Mt @ 15% ZnEq
  - Tailings 1.1Mt @ 5.8% ZnEq
- Shallow extensions – G, G2, Lisa, D lenses
- Adjacent trends & step out targets
- Deeper extensions – all 12 lenses

2

### Near Mine (Regional) Exploration

- Historical satellite production sources
- Advanced regional deposits
- Regional prospects
- Commanding land tenure position

3

4

5

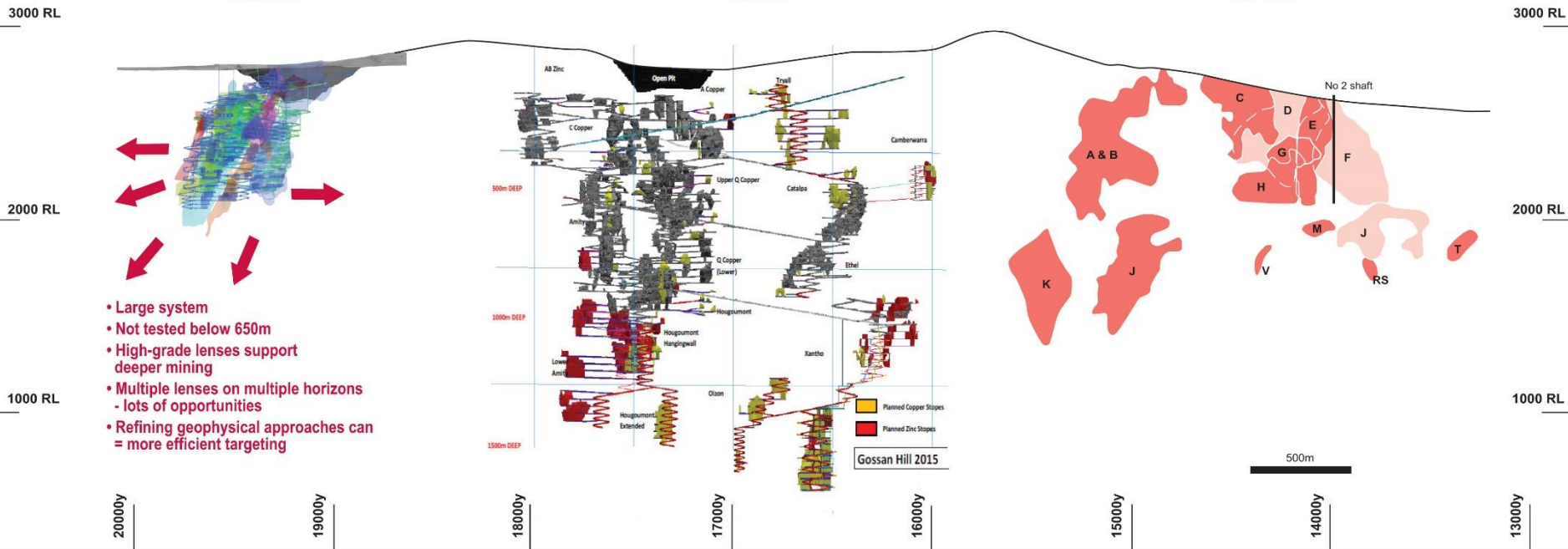
# GROWTH WOODLAWN IN-MINE EXPLORATION

Limited Testing - Comparison with more extensively tested VMS deposits

**Woodlawn  
~23Mt**

**Golden Grove / Gossan Hill  
~48Mt**

**Rosebery  
~50Mt**



- Large system
- Not tested below 650m
- High-grade lenses support deeper mining
- Multiple lenses on multiple horizons - lots of opportunities
- Refining geophysical approaches can = more efficient targeting

# GROWTH WOODLAWN IN-MINE EXPLORATION

Multiple drilling programs – high grades across multiple massive sulphide lenses

Kate Lens Polymetallic  
52% ZnEq



31% Zn, 2.0% Cu, 14% Pb, 0.54g/t Au, 96g/t Ag  
WNDD0007: 425 – 426m

Kate Lens Polymetallic  
33% ZnEq



20% Zn, 3.1% Cu, 1.2% Pb, 0.9g/t Au, 51g/t Ag  
WNDD0031: 385.85-386.50m

Kate Lens Copper  
30% ZnEq



9.1% Cu, 0.87g/t Au, 26g/t Ag  
WNDD0071: 383-384m

B Lens Extension  
26% ZnEq



12% Zn, 0.5% Cu, 7.6% Pb, 1.0g/t Au, 169g/t Ag  
WNDD0108: 552.17-553.06m

G2 Mass Polymetallic  
54% ZnEq



23% Zn, 6% Cu, 14% Pb, 0.11g/t Au, 52g/t Ag  
WNDD0114: 150.65-151.65

G2 Mass Polymetallic  
45% ZnEq

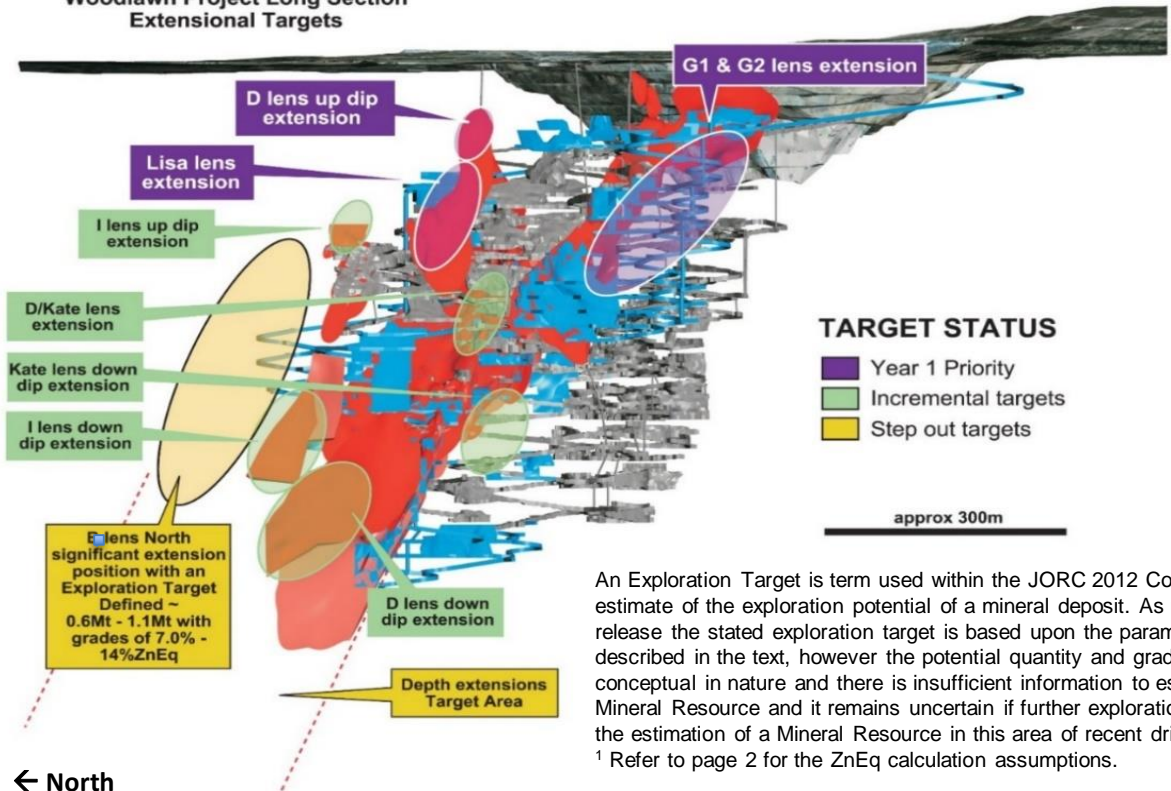


35% Zn, 0.8% Cu, 2.2% Pb, 2.2g/t Au, 114g/t Ag  
WNDD0138: 124.04-125.13

# GROWTH WOODLAWN IN-MINE EXPLORATION

## Targeted additions to the Mine Plan

Woodlawn Project Long Section  
Extensional Targets



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<sup>1</sup> Refer to page 2 for the ZnEq calculation assumptions.

## Immediate Value-Add

*Significant untapped potential remains 'in-mine'*

14 Massive Sulphide Lenses

Numerous extensional positions

New lens discovery potential remains (since 2013 - Kate, Lisa, B Nth, G2)

Majority supported by existing planned capital development

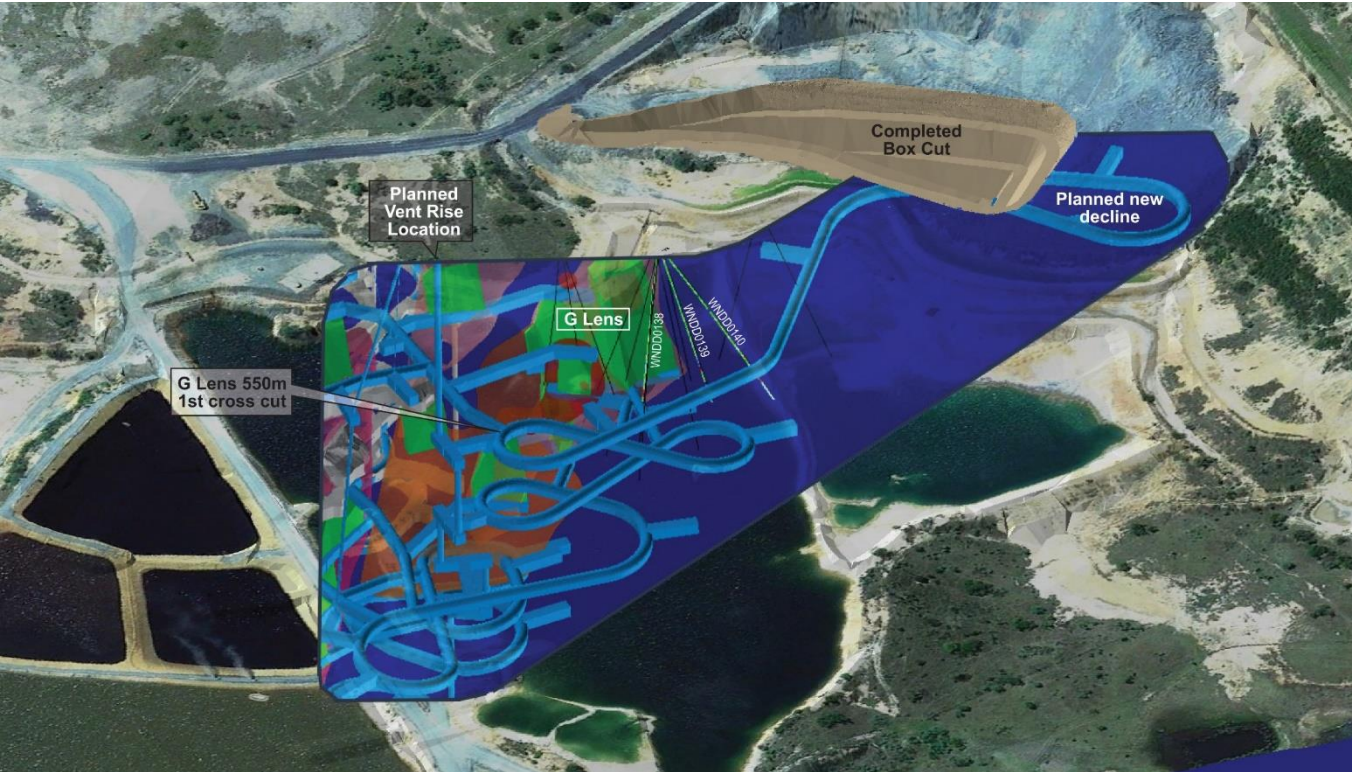
2017/2018 Focus – G2 & Lisa

- Shallow
- Early production sources

Mine Plan - Integrated drill testing program

# GROWTH WOODLAWN IN-MINE EXPLORATION

G2 Main Lens – early stage mine plan addition



## Immediate Value-Add

First mineralisation to be accessed underground

Returned high grade results from G2 & G2 H/W

Resource update H2 2018 (final assays Aug)

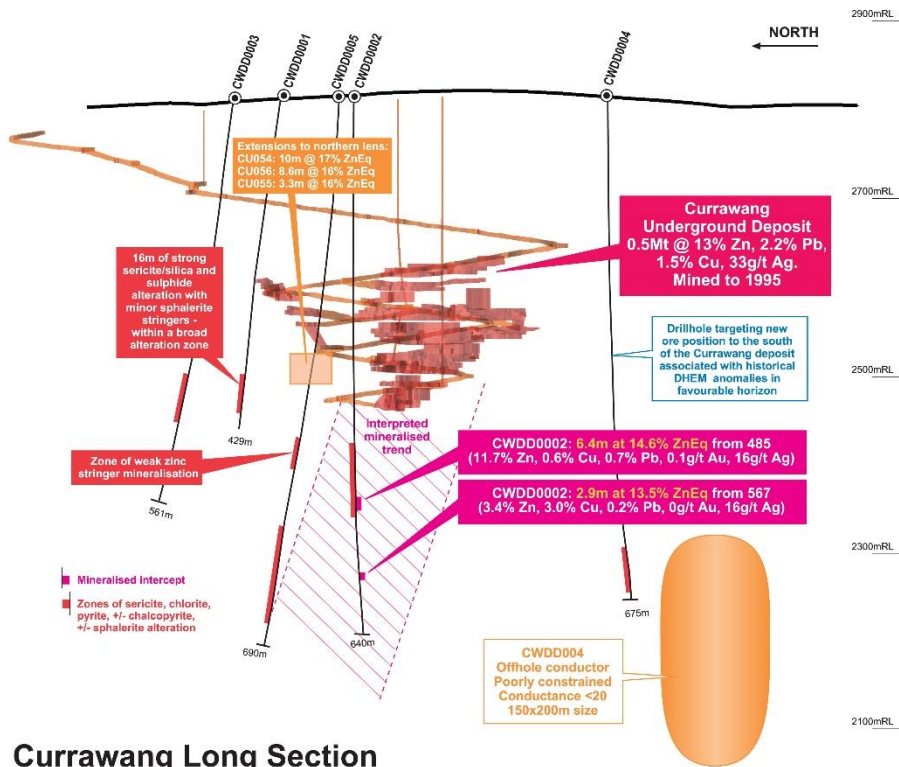
Positive initial metallurgical test work results

Depth extension potential (not closed off)



# GROWTH CURRAWANG

Success with the first exploration program in 20 years



## Currawang Long Section

Note: only current program drilling shown - existing drilling removed for clarity

## Regional Priority

10km NW of Woodlawn

Mined 1992-1996:

- 0.5Mt @ 13% Zn, 1.5% Cu, 2.2% Pb, 33g/t Ag

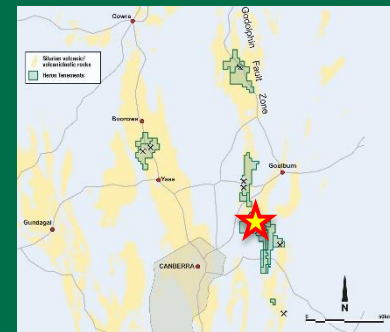
Unmined extensions:

- 8.6m @ 16% ZnEq
- 10.0m @ 17% Zn Eq

2017 – Completed 5 hole drilling program

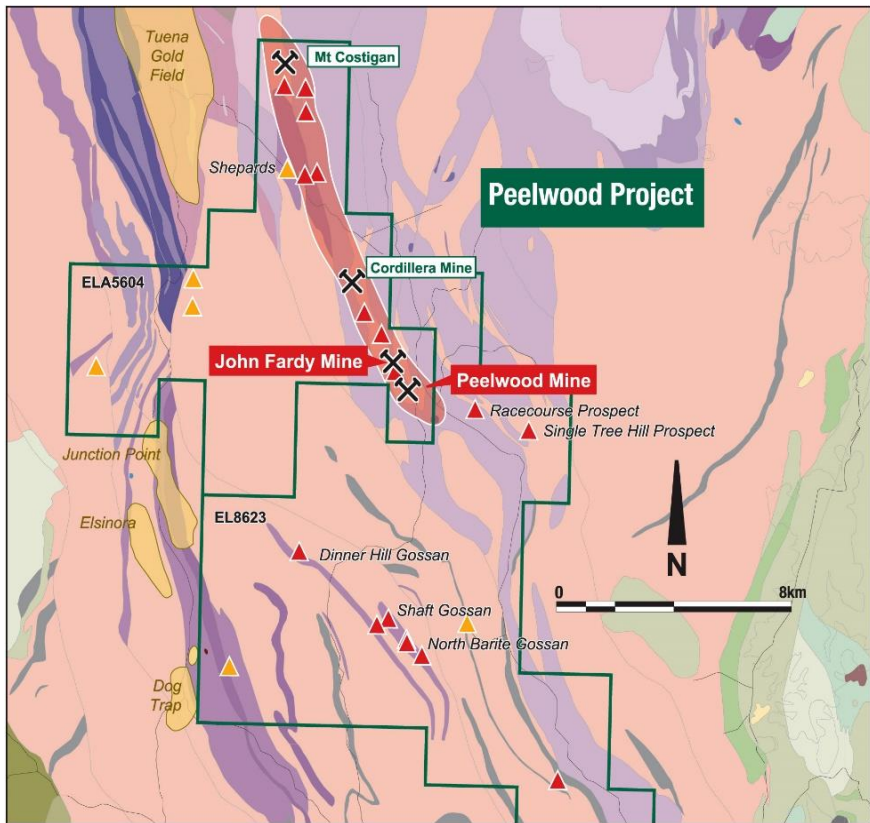
Intercepted semi-massive zinc and copper sulphides:

- 6.4m @ 14.6% ZnEq from 485m (11.7% Zn, 0.6% Cu, 0.7% Pb, 0.1g/t Au, 16g/t Ag)
- 2.9m @ 13.5% ZnEq from 567m (3.4% Zn, 3.0% Cu, 0.2% Pb, 0g/t Au, 16g/t Ag)



# GROWTH PEELWOOD

Advanced VMS deposits



## LEGEND

- Base Metal Mine (Red callout -prospects with JORC(2004) Mineral Resources)
- Base-metal prospects
- Gold prospects
- Heron Tenements
- Base-metal 'camps'
- Gold 'camps'

## Devonian

- Cunningham Formation, Slaty siltstone with minor shale and sandstone
- Bushranger Volcanics, Porphyritic andesite
- Cooks Vale Granite, Muscovite-biotite granite

## Silurian

- Cuddying Formation, Sandstone, siltstone and shales with rhyolitic to dacitic volcanoclastic rocks and lavas
- Cuddying Formation, Rhyolitic to dacitic, volcanic sandstone and lava
- Cuddying Formation, Quartzose sandstone with interbedded, grey to black siltstone
- Cuddying Formation, Black, siliceous, carbonaceous, and pyritic siltstone and shale
- Kangaloolah Volcanics, Rhyolitic, volcanic sandstone and breccia with some tuffaceous shales
- Wrens Nest Trachyte, Porphyritic quartz trachyte to rhyolite
- Limestone which locally contains crinoid ossicles

## Regional Priority

105km north of Woodlawn

New ELA5604 – VMS camp coverage

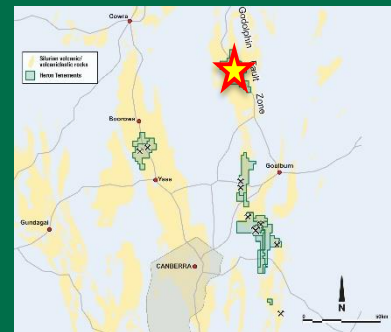
John Fardy & Peelwood Mines – a 'forgotten' asset

High grade VMS drill results:

8.4m from 36m (JF16)  
(23.5% Zn, 2.6% Cu, 0.6% Pb, 41g/t Ag)

6.1m from 45m (JF38)  
(22.7% Zn, 1.2% Cu, 1.5% Pb, 23g/t Ag)

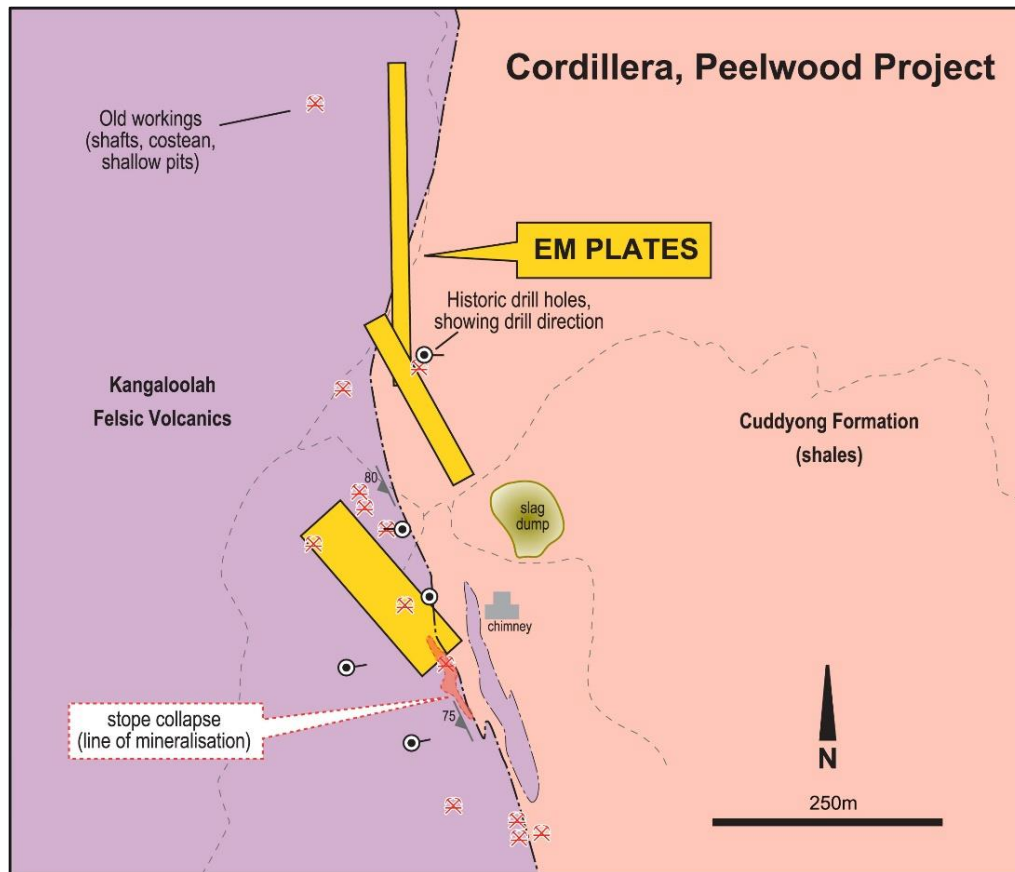
Previously defined resources, reserves and project studies – Balamara 2009





# GROWTH PEELWOOD

## Cordillera Mine Prospect – Electromagnetic Anomalies Drill Targets



## Regional Priority

Historic mine site

4km north – west of Peelwood

Grab sample from mine dumps of fresh massive sulphide by Heron returned:

**16%Zn, 25%Pb and 497g/t Ag**

2014 airborne EM survey -

- EM anomalies extending to the north
- Previous drilling has not tested

Finalising land access and drilling preliminaries – drilling Q3



## HERON PRODUCING ZINC IN 2019



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# HERON RESOURCES

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ASX: HRR

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# WOODLAWN Mineral Resources and Ore Reserves - Underground

Woodlawn Total Underground Mineral Resource 2017 (ASX Release 13 Nov 2017)  
(7% ZnEq cog for Polymetallic and 1% Cu cog for Copper)

## Indicated + Measured Mineral Resource

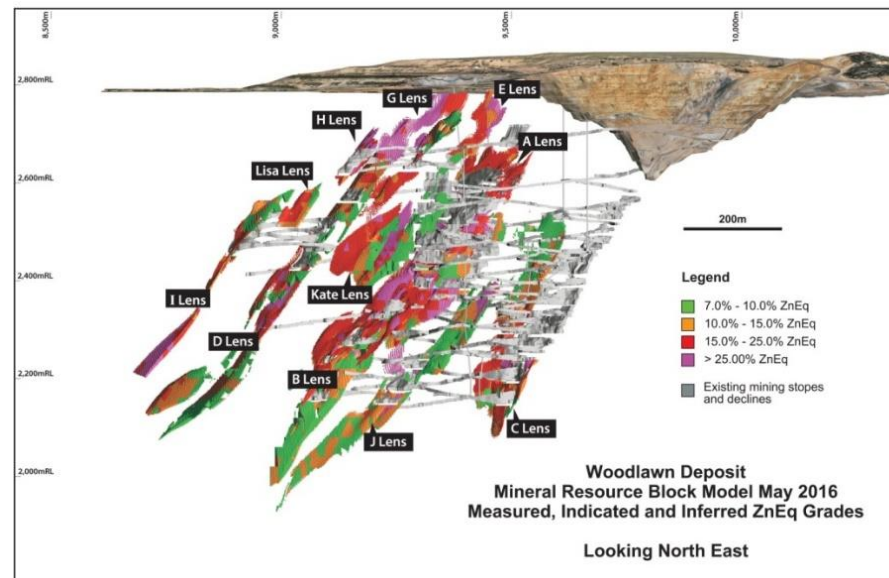
			Tonnes Mt	ZnEq %	Zn %	Cu %	Pb %	Au g/t	Ag g/t
All Lenses	Polymetallic	Ind+Mea	2.7	21.6	10.9	1.5	4.0	0.7	79
All Lenses	Copper	Ind+Mea	1.9	9.7	0.7	2.6	0.1	0.2	14
<b>Total</b>	<b>Combined</b>	<b>Ind+Mea</b>	<b>4.6</b>	<b>16.7</b>	<b>6.7</b>	<b>1.9</b>	<b>2.4</b>	<b>0.5</b>	<b>52</b>

## Inferred Mineral Resource

			Tonnes Mt	ZnEq %	Zn %	Cu %	Pb %	Au g/t	Ag g/t
All Lenses	Polymetallic	Inf	1.9	16.9	7.3	1.5	3.0	0.8	61
All Lenses	Copper	Inf	0.7	9.2	0.7	2.5	0.1	0.2	12
<b>Total</b>	<b>Combined</b>	<b>Inf</b>	<b>2.6</b>	<b>14.9</b>	<b>5.6</b>	<b>1.8</b>	<b>2.2</b>	<b>0.6</b>	<b>48</b>

## Total Mineral Resource

			Tonnes Mt	ZnEq %	Zn %	Cu %	Pb %	Au g/t	Ag g/t
All Lenses	Polymetallic	Ind+Mea+Inf	4.6	19.7	9.4	1.5	3.6	0.7	71.6
All Lenses	Copper	Ind+Mea+Inf	2.6	9.6	0.7	2.6	0.1	0.2	13.5
<b>Total</b>	<b>Combined</b>	<b>Ind+Mea+Inf</b>	<b>7.2</b>	<b>16.0</b>	<b>6.3</b>	<b>1.9</b>	<b>2.3</b>	<b>0.5</b>	<b>50.6</b>



## Woodlawn Underground Mineral Reserve Estimate 2016

Type	Reserve Category	Quantity (Mt)	ZnEq(%)	Zn(%)	Cu(%)	Pb(%)	Au(g/t)	Ag(g/t)
Polymetallic	Proven	0						
Polymetallic	Probable	1.8	16	8.1	1.2	2.9	0.56	57
Copper	Proven	0						
Copper	Probable	0.96	8.8	0.61	2.4	0.13	0.23	14
<b>Total</b>	<b>Probable</b>	<b>2.8</b>	<b>14</b>	<b>5.5</b>	<b>1.6</b>	<b>1.9</b>	<b>0.45</b>	<b>42</b>



# Mineral Resources and Ore Reserves - Tailings

## Mineral Resource Estimate - Woodlawn Retreatment Project (2016)

Resource Category	Grades						
	Quantity (Mt)	ZnEq (%)	Zn (%)	Cu (%)	Pb (%)	Au (g/t)	Ag (g/t)
<b>Measured + Indicated Mineral Resources</b>							
North Dam	2.7	6.0	2.40	0.42	1.30	0.27	34
South Dam	3.3	6.0	2.50	0.46	1.20	0.25	27
West Dam	3.8	6.5	2.0	0.62	1.40	0.40	35
<b>Total Mea+ Ind</b>	<b>9.8</b>	<b>6.2</b>	<b>2.30</b>	<b>0.51</b>	<b>1.3</b>	<b>0.31</b>	<b>32</b>
<b>Inferred Mineral Resources</b>							
North Dam	0.2	6.2	2.40	0.42	1.30	0.27	34
South Dam	0.9	5.6	2.30	0.48	1.20	0.25	24
West Dam	0.0	-	-	-	-	-	-
<b>Total Inferred</b>	<b>1.1</b>	<b>5.8</b>	<b>2.30</b>	<b>0.47</b>	<b>1.20</b>	<b>0.25</b>	<b>27</b>
<b>Total Mea+Ind+Inf</b>	<b>10.9</b>	<b>6.2</b>	<b>2.30</b>	<b>0.51</b>	<b>1.29</b>	<b>0.30</b>	<b>32</b>

## Woodlawn Tailings Mineral Reserve Estimate 2016

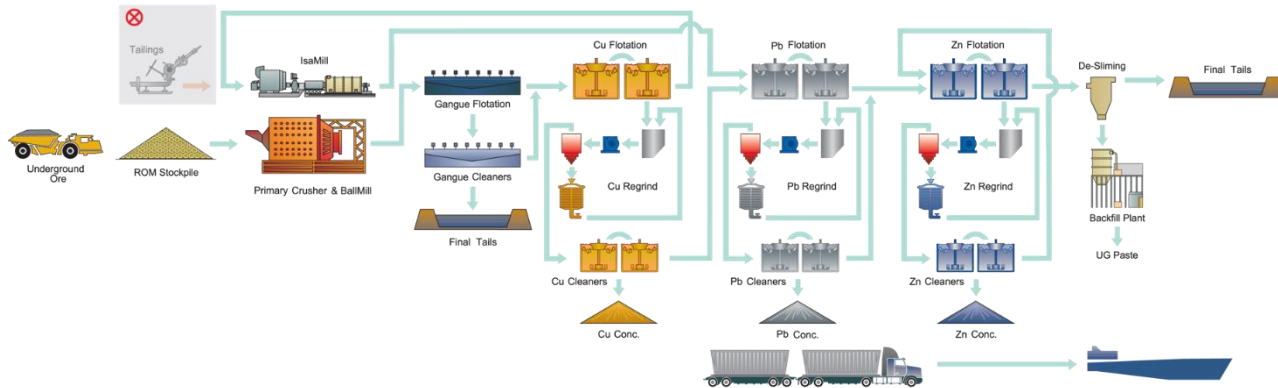
Reported with no cut-off grade applied

Reserve Category	Quantity (Mt)	ZnEq(%)	Zn(%)	Cu(%)	Pb(%)	Au(g/t)	Ag(g/t)
Proven	6.4	6.0	2.2	0.5	1.3	0.29	31
Probable	3.2	6.0	2.1	0.5	1.3	0.33	32
<b>Total (Proven + Probable)</b>	<b>9.5</b>	<b>6.0</b>	<b>2.2</b>	<b>0.5</b>	<b>1.3</b>	<b>0.31</b>	<b>31</b>

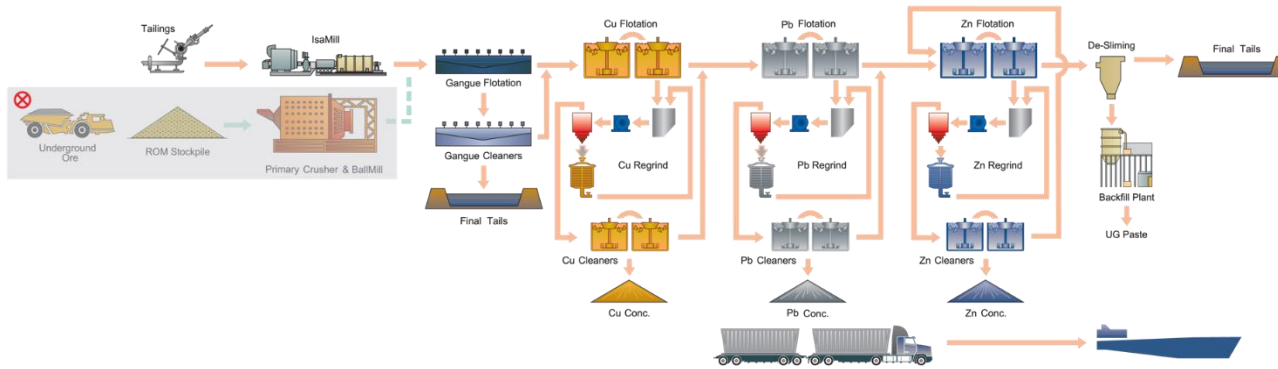


# WOODLAWN PROCESS PLANT

Campaign treatment from two de-coupled ore sources



Underground  
Ore Configuration  
←



Reclaimed Tailings  
Ore Configuration  
←